12. A communication and control system in combination with a railway train which comprises at least one main engine and a plurality of carriages or wagons,

the communication and control system comprising

a first and second bi-directional transmission lines which extend parallel to and spaced from one another along the train;

a main control installed on said main engine and connected, in said main engine, to both said transmission lines and to brake control systems or devices of the train;

a plurality of slave control units each of which is installed upon a respective carriage or wagon and is connected, in the respective carriage or wagon, to both said transmission lines, to solenoid valve units associated with pneumatic brake actuators, as well as to sensor devices associated with the carriage or wagon;

the main control unit and the slave control units being arranged to communicate with one another via said transmission lines according to a predetermined serial protocol;

the main control unit being arranged to transmit to the slave control units brake control signals of serial type, and to receive and acquire information or state signals likewise or serial type from said slave control units via at least one of said transmission lines.

13. The system according to Claim 12 further comprising at least one auxiliary engine;

said auxiliary engine being also provided with a control unit capable of acting as a slave unit connected to said transmission lines and arranged to receive synchronization signals

coming from the control unit of the lead engine and to transmit information or state signals to the control unit of the main engine via at least one of said transmission lines.

14. The system according to Claim 12, wherein the main control unit is arranged to transmit brake control signals to the slave control units via one of said transmission lines and to receive information signals coming from said control units via the other of said transmission lines.

15. The system according to Claim 12, wherein the main control unit is arranged to detect and determine the location along the train of the position of a failure of one of said transmission lines.

16. The system according to Claim 15, wherein the main control unit is arranged, in the case of a failure of one of said transmission lines, to transmit at least the brake control signals and possible synchronization signals for one or more auxiliary engines on the other of said transmission lines.

17. The system according to Claim 12, wherein the slave control units are arranged to acquire and transmit signals on one or the other transmission line equally, and are moreover operable, when the slave control units receive a brake control signal, to transfer to the other transmission line signals received on one line; the main control unit being arranged to detect a condition in which said transmission lines are both interrupted, each between different pairs of slave control units, and in such a case to send brake control signals to at least two slave control units from among those in which there is an interruption of one of said transmission lines, in such a way that all the slave control units are able to communicate with the main control units

via a provisional transmission line comprising portions of both said transmission lines and the slave control units which have been sent said brake control signals.

18. The system according to Claim 12, wherein said transmission liens are further connected to electrical power supply devices which can be activated in at least one engine to distribute the power to the slave control unit.

19. The system according to Claim 17, wherein the salve control units are arranged to allow the passage of electrical power from one transmission lien to the other which are connected, when the slave control units receive said transfer command signal, in such a way that when both said transmission lines are interrupted, each between different pairs of slave control units, all said slave control units can be supplied with electrical power propagated through said provisional transmission line.

20. The system according to Claim 12, wherein said transmission lines are travelling wave twin wire lines operable to transmit electrical power and serial type signals simultaneously.

21. The system according to Claim 12, wherein the system operates in trains comprising one or more vehicles provided with a single transmission line.

22. The system according to claim 18, wherein the slave control units are arranged to allow the passage of electrical power from one transmission line to the other which are connected, when the slave control units receive said transfer command signal, in such a way that when both said transmission lines are interrupted, each between different pairs of slave control units, all said slave control units can be supplied with electrical power propagated through a provisional transmission line.--